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NOISE ASSESSMENT STUDY
FOR THE PLANNED
"MILPITAS TOWN CENTER"
COMMERCIAL DEVELOPMENT,
CALAVERAS BOULEVARD
MILPITAS

Prepared for

Shapell Industries of Northern California

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I. Background Information on Acoustics

Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB) with 0 dB corresponding roughly to the threshold of hearing. Most of the sounds which we hear in our normal environment do not consist of a single frequency, but rather a broad range of frequencies. As humans do not have perfect hearing, environmental sound measuring instruments have an electrical filter built in so that the instrument's detector replicates human hearing. This filter is called the "A-weighting" network which filters down low and very high frequencies.

Noise is defined as unwanted sound. All environmental noise is reported in terms of A-weighted decibels, notated as dBA. All sound levels used in this report are A-weighted unless otherwise noted. Table I provides the typical human response and noise sources for A-weighted noise levels.

Although the A-weighted noise level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a mixture of noise from distant sources which create a relatively steady background noise in which no particular source is identifiable. To describe the time-varying character of environmental noise, the statistical noise descriptors, L_1, L_{10}, L_{50} and L_{90} are commonly used. They are the A-weighted noise levels exceeded during 1%, 10%, 50% and 90% of a stated time period. The continuous equivalent-energy level (L_{eq}) is that level of a steady state noise which has the same sound energy as a time varying noise and is often considered the average noise level over a given time period.

TABLE I

The A-Weighted Decibel Scale, Human Response, and Typical Noise Sources

Noise Level, dBA	Human Response	Noise Source
120-150+	Painfully Loud	Sonic Boom (140 dBA)
100-120	Physical Discomfort	Discotheque (115 dBA) Motorcycle at 20 ft. (110 dBA) Power Mower (100 dBA)
70-100	Annoying	Diesel Pump at 100 ft. (95 dBA) Train Horn at 50 ft. (90 dBA) Food Blender (90 dBA) Jet Plane at 1000 ft. (85 dBA) Freeway at 100 ft. (80 dBA) Alarm Clock (80 dBA)
50-70	Intrusive	Average Traffic at 100 ft. (70 dBA) Vacuum Cleaner (70 dBA) Typewriter (65 dBA)
0-50	Quiet	Normal Conversation (50 dBA) Light Traffic at 100 ft. (45 dBA) Refrigerator (45 dBA) Whispering (35 dBA) Leaves Rustling (10 dBA) Threshold of Hearing (0 dBA)

In determining the daily level of environmental noise, it is important to account for the difference in response of people to daytime and nighttime noises. During the nighttime, exterior background noises are generally lower than the daytime levels. However, most household noise also decreases at night and exterior noise becomes very noticeable. Further, most people sleep at night and are very sensitive to noise intrusion. To account for human sensitivity to nighttime noise levels, the Day-Night Level (DNL) noise descriptor was developed. The DNL divides the 24-hour day into the daytime period of 7:00 a.m. to 10:00 p.m. and the nighttime period of 10:00 p.m. to 7:00 a.m. The nighttime noise levels are penalized by 10 dB to account for the greater sensitivity to noise at night. The Community Noise Equivalent Level (CNEL) is another 24-hour average which includes 5 dB evening (7:00 p.m. - 10:00 p.m.) and 10 dB nighttime penalties.

The effects of noise on people can be listed in three general categories:

- subjective effects of annoyance, nuisance, dissatisfaction;

- interference with activities such as speech, sleep, learning;

- physiological effects such as startling, hearing loss.

The levels associated with environmental noise, in almost every case, produce effects only in the first two categories. Workers in industrial plants can experience noise in the last category. Unfortunately, there is as yet no completely satisfactory way to measure the subjective effects of noise, or of the corresponding reactions of annoyance and dissatisfaction. This is primarily due to the wide variation in individual thresholds of annoyance and differing individual past experiences with noise.

Thus, an important way of determining a person's subjective reaction to a new noise is to compare it to the existing environment to which one has adapted, i.e., the "ambient". In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by the receptors.

With regard to the effect of increases in A-weighted noise levels on the general population, the U.S. Environmental Protection Agency has established the following relationships:

Noise Level Increase	Reaction of the General Public
1 dB	Imperceptible except under carefully controlled laboratory conditions
3 dB	A just perceptible difference outside the laboratory
5 dB	Required for any noticeable change in community response to be expected
10 dB	A 10 dB change is subjectively heard as approximately a doubling in loudness, and would almost certainly cause an adverse change in community response

Appendix G of the California Environmental Quality Act (CEQA) *Guidelines* defines a significant noise impact from a project if it would result in exposure of persons to noise levels in excess of local standards, to excessive ground vibration or to a substantial permanent or temporary increase in the ambient noise levels. A 1-2 dB increase is usually considered insignificant, while a 3-5 dB increase is often considered the threshold of significance, unless the ambient noise exposures are already in excess of the local adopted standards. In the latter case, any increase in the noise environment would be considered significant.

II. Acoustical Setting

A. Description of the Study Area

The proposed project site is located at the northeast quadrant of the Calaveras Boulevard and Milpitas Boulevard intersection, as shown on the Site Plan, Ref. (a). The site presently contains the Milpitas Town Center, which is comprised of an existing shopping center, an office building, the new City Hall, City Library and Community Center and three separate restaurant structures. The site is relatively flat and at-grade with the adjacent roadways. Surrounding land uses include the Beresford Village multi-family development adjacent to the north, Calaveras Creek adjacent to the east, and commercial uses across Calaveras Boulevard and Milpitas Boulevard to the south and west, respectively.

The primary source of noise at the portion of the site being developed and remodeled is traffic on Calaveras Boulevards and Milpitas Boulevard.

Traffic accessing the existing shopping center is intermittent and does not significantly impact the existing Beresford Village residences nor the portion of the site being considered for multi-family development.

B. Project Description

The proposed project includes the construction of a 52,999 sq. ft. Safeway grocery store with some attached retail shops, the construction of 65 townhouse units and the remodeling of an existing retail building that includes the replacement of the existing Miller's Outpost store with the relocated Staples store.

C. Noise Standards

The noise exposures presented in this study were evaluated against the standards of the City of Milpitas Noise Element, Ref. (b), which utilizes the Day-Night Level (DNL) noise descriptor. The DNL is a 24-hour time-weighted average noise descriptor commonly used to describe community noise environments.

The Noise Element specifies a limit of 65 decibels (dB) DNL at the Beresford Village project and at the exterior living areas of the project residences. This noise limit is applied to project-generated traffic, loading dock operations and mechanical equipment. Policy 6-I-7 also states that, "Avoid residential DNL exposure increases of more than 3 dB or more than 65 dB at the property line, whichever is more restrictive. To limit the increase in a noise environment to 3 dB or less, the added noise must be no greater than existing ambient noise level. By the rules of decibel addition, the sum of two similar noise levels is 3 dB higher than either of the two source levels. For instance, 50 dB + 50 dB = 53 dB. The mathematical formula is:

$$\text{Total sound level} = 10\log_{10}(10^{SL/10} + 10^{SL/10})$$

The noise exposures at the project residences were also evaluated against the standards of the State of California Code of Regulations, Title 24, Ref. (c), which is applicable to all new multi-family housing. The standards specify an exterior noise criterion of 60 dB DNL and state that when the exterior noise exposure at the building setback is exposed to noise greater than 60 dB DNL an noise analysis must be performed to limit the interior noise exposures in project living spaces to 45 dB DNL or less.

III. Existing Noise Environment

- The existing exterior noise exposures at the location of the planned Safeway (existing Staples) store range from 59-61 dB DNL. Thus, the noise exposures are within the limits of the standards for commercial land use.

- The existing exterior noise exposures at the planned minimum building setback of the project residences behind the Miller's Outpost (new Staples) store range from 61-63 dB DNL. Thus, the noise exposure are within the limits of the standards for multi-family residential land use, but are up to 3 dB in excess of the Title 24 criterion.

- The lowest existing exterior noise exposure in the rear yards of the Beresford Village residences behind the planned Safeway store was calculated to be 55 dB DNL. The noise exposure in the rear yards of Beresford Village closest to Milpitas Boulevard are estimated to be up to 65 dB DNL.

To determine the existing noise environment at the planned commercial buildings, at Beresford Village and at the planned project residences, continuous recordings of the sound levels were made at two locations on the site. Location 1 was along the south side of the rear access road behind the proposed Safeway store, near the returnables yard. Location 2 was in the parking area behind the shops adjacent to the Miller's Outpost store. The noise measurements were acquired and processed using Larson-Davis LDL 812 Precision Integrating Sound Level Meters, which yield, by direct readout, a series of descriptors of the sound levels versus time. The measured noise descriptors include the L_1, L_{10}, L_{50}, and L_{90}, i.e., those levels exceeded for 1%, 10%, 50%, and 90% of the time. Also measured were the maximum and minimum levels, and the continuous equivalent-energy levels (L_{eq}), which are used to calculate the DNL's. The measurements were made on March 27-31, 2003 for a total period of 92 hours at each location, from Thursday afternoon to Morning, and included recordings of the noise levels during the daytime and nighttime periods of the DNL index. The results of the measurements are shown in the data tables in Appendix C.

As shown in the tables, the Thursday-Friday L_{eq}'s at measurement Location 1 ranged from 54.4 to 61.7 dBA during the daytime and from 47.6 to 58.5 dBA at night. On Friday-Saturday, the L_{eq}'s at Location 1 ranged from 51.2 to 62.1 dBA during the daytime and from 47.9 to 58.3 dBA at night. The Saturday-Sunday L_{eq}'s at measurement Location 1 ranged from 53.3 to 58.4 dBA during the daytime and from 45.7 to 55.0 dBA at night. The Sunday-Monday L_{eq}'s at measurement Location 1 ranged from 52.7 to 57.3 dBA during the daytime and from 45.0 to 61.8 dBA at night.

At Location 2 the Thursday-Friday L_{eq}'s ranged from 53.1 to 61.5 dBA during the daytime and from 49.9 to 59.3 dBA at night. On Friday-Saturday, the L_{eq}'s at Location 2 ranged from 51.6 to 59.3 dBA during the daytime and from 45.4 to 59.3 dBA at night. The Saturday-Sunday L_{eq}'s at measurement Location 2 ranged from 50.9 to 56.4 dBA during the daytime and from 46.8 to 60.6 dBA at night. The Sunday-Monday L_{eq}'s at measurement Location 2 ranged from 51.9 to 57.5 dBA during the daytime and from 49.0 to 61.2 dBA at night.

IV. Project-Generated Noise

The potential for noise impacts to the Beresford Village residences generated by the project and noise impacts to the project residences from commercial operations of the project will be limited to trucking and loading dock operations, and mechanical equipment at the project retail uses. Project traffic will not be an issue as most traffic will be restricted to the parking area in front of the buildings and access directly off of Calaveras Boulevard and Milpitas Boulevard.

A. Trucking and Loading Dock Noise Analysis

The primary source of noise generated by the project will be Safeway trucks and vendor trucks accessing the loading dock off of Milpitas Boulevard and Calaveras Boulevard. Safeway trucks are 18 wheel tractor-trailer vehicles. The vendor trucks are usually 10-ton box trucks and "beer trucks". Trucks arriving during the daytime hours of 7:00 a.m. to 10:00 p.m. will enter the site off of Milpitas Boulevard, continue along the access drive adjacent to Beresford Village and turn right behind the Safeway. Vendor trucks will off-load in the driveway behind the store. Safeway trucks will back into the loading dock. After off-loading is performed, the trucks will continue past the Safeway store, turn right and then left onto the access drive along Beresford Village. Trucks arriving during the nighttime hours of 10:00 p.m. and 7:00 a.m. will enter the site from Calaveras Boulevard, drive past the front of the Safeway store and perform a backing movement into the loading dock. Nighttime trucks will depart out to Calaveras Boulevard. The nighttime truck path was developed to minimize truck noise impacts to the Beresford Village residences during noise sensitive hours.

Safeway truck and vendor truck noise levels used in this study were acquired from recent past noise studies of Safeway grocery stores in the South Bay Area, Ref's. (d, e, f).

Safeway reports an average daily volume of 4 trucks per day with two of these non-refrigerated trucks and two of these containing refrigeration units over the tractor cab, Ref. (g). The proposed store will be a 24-hour operation, Ref. (h). Other 24-hour Safeway stores in the area have the non-refrigerated trucks and one of the refrigerated trucks arrive during the daytime hours. One of the refrigerated trucks will typically arrive around 1:00 a.m. However, the implementation of the nighttime truck path will allow all four trucks to access the loading dock during the nighttime hours without producing significant noise impacts. Safeway also reports a daily average of 20 vendor trucks. Of these 20 trucks, we estimate that five trucks will arrive before 7:00 a.m. (nighttime) and the remaining 15 trucks will arrive between 7:00 a.m. and 11:00 a.m. (daytime).

Beresford Village

One *non-refrigerated* Safeway truck generates an average sound level of 72 dBA over a 30 second passby period at a distance of 40 ft. For daytime trucks, adjusting for the distance of 25 ft. from the truck path to the Beresford Village rear yards and including a 4 dB reduction provided by the existing soundwall, the 30 second passby sound level in the most impacted rear yards will be 71 dBA. Over a 1 hour period, the hourly average noise level will be 50 dBA L_{eq} (continuous equivalent-energy level). For the section of Beresford Village between Milpitas Boulevard and the new intersection, the in/out hourly average sound level in the rear yards will be 53 dBA L_{eq}.

During the nighttime periods, trucks will be limited to 220 ft. from the residential property line. The backing movement is expected to take approximately 12 seconds. The hourly L_{eq} for one nighttime *non-refrigerated* truck will be 32 dBA.

One *refrigerated* Safeway truck generates an average sound level of 81 dBA over a 30 second passby period at a distance of 40 ft. Using the same daytime adjustments described above, the 30 second sound level in the most impacted rear yard will be 80 dBA. Over a 1 hour period, the sound level will be 59 dBA L_{eq}. For the residences along the in/out path, the sound level in the rear yards will be 62 dBA L_{eq}.

During the nighttime periods, trucks will be limited to 220 ft. from the residential property line. The backing movement is expected to take approximately 12 seconds. The hourly L_{eq} for one nighttime *refrigerated* truck will be 41 dBA.

A typical vendor truck generates an average sound level of 70 dBA over a 30 second passby period at a distance of 40 ft. Adjusting for the distance of 25 ft. from the truck path to the Beresford Village rear yards and including a 6 dB reduction provided by the existing soundwall, the 30 second passby sound level in the most impacted rear yards will be 67 dBA. Over a 1 hour period, the hourly average noise level will be 46 dBA L_{eq}. For the residences along the in/out path, the hourly average sound level in the rear yards will be 46 dBA L_{eq}.

Loading dock noise includes the trucks maneuvering into the dock area and backing down the dock ramp (for Safeway trucks), opening rear doors, unloading products using hand trucks and carts, closing doors, starting engines and pulling out. Loading dock noise also includes the noise from refrigerated trucks' refrigeration unit being left on while unloading. All truck noise during loading assumes that engines are turned off during unloading. Although trucks may service the dock from 15 minutes to one hour, the average unloading time is approximately 30 minutes. Certain vendors stay longer when they stock the store (bread deliveries). Most vendors and the Safeway deliveries, however, leave as soon as the truck is off-loaded.

One *non-refrigerated* Safeway truck entering the dock, off-loading products and leaving generates a 30 minute average noise level of 59 dBA at a distance of 50 ft. from the side of the dock. This noise level does not include the noise reduction provided by dock screen walls, but it does include the use of a tight fitting dock curtain at the rear of the truck. At a distance of 180 ft. to the nearest Beresford Village residences and a 4 dB reduction for the existing soundwall, the 30 minute average sound level at Beresford Village will be 47 dBA. The hourly average sound level will be 44 dBA L_{eq}.

One *refrigerated* Safeway truck entering the dock, off-loading products and leaving generates a 30 minute average noise level of 68 dBA at a distance of 50 ft. from the side of the dock. This noise level does not include the noise reduction provided by dock screen walls, but it does include the use of a tight fitting dock curtain at the rear of the truck. At a distance of 180 ft. to the nearest Beresford Village residences and a 4 dB reduction for the existing soundwall, the 30 minute average sound level at Beresford Village will be 56 dBA. The hourly average sound level will be 53 dBA L_{eq}.

One vendor truck entering the dock, off-loading products and leaving generates a 30 minute average noise level of 57 dBA at a distance of 50 ft. from the side of the truck. At a distance of 100 ft. to the nearest Beresford Village residences and a 6 dB reduction for the existing soundwall, the 30 minute average sound level at Beresford Village will be 46 dBA. The hourly average sound level will be 43 dBA L_{eq}.

Project Residences

One *non-refrigerated* Safeway truck generates an average sound level of 72 dBA over a 30 second passby period at a distance of 40 ft. For daytime trucks, adjusting for the distance of 160 ft. from the truck path to the project residence the 30 second passby sound level at the most residence will be 63 dBA. Over a 1 hour period, the hourly average noise level will be 45 dBA L_{eq}.

For nighttime truck operations, the distance to the nearest residence will be 440 ft. Over a 12 second backing movement operation, the hourly L_{eq} for one *non-refrigerated* truck will be 32 dBA.

One *refrigerated* Safeway truck generates an average sound level of 81 dBA over a 30 second passby period at a distance of 40 ft. Using the same daytime adjustments described above, the 30 second sound level at the most impacted residence will be 72 dBA. Over a 1 hour period, the sound level will be 54 dBA L_{eq}.

For nighttime truck operations, the distance to the nearest residence will be 440 ft. Over a 12 second backing movement operation, the hourly L_{eq} for one *refrigerated* truck will be 41 dBA.

A typical vendor truck generates an average sound level of 70 dBA over a 30 second passby period at a distance of 40 ft. Using the same adjustments described above, the 30 second sound level at the most impacted residence will be 61 dBA. Over a 1 hour period, the sound level will be 43 dBA L_{eq}.

The loading dock sound levels for one *non-refrigerated* Safeway truck will be 39 dBA over a 30 minute off loading period and includes a 10 dB reduction provided by the Safeway building. The hourly average noise level will be 36 dBA L_{eq}.

The loading dock sound levels for one *refrigerated* Safeway truck will be 48 dBA over a 30 minute off loading period and includes a 10 dB reduction provided by the Safeway building. The hourly average noise level will be 45 dBA L_{eq}.

The loading dock sound levels for one vendor truck will be 49 dBA over a 30 minute off loading period. The Safeway building will not provide acoustical shielding for the vendor off-load area. The hourly average noise level will be 46 dBA L_{eq}.

The Staples store will operate from 7:00 a.m. to 8:00 p.m. Monday-Friday, 9:00 a.m. to 7:00 p.m. Saturday and 10:00 a.m. to 6:00 p.m. Sunday. Staples receives two delivery trucks per week, as reported by Staples, Ref. (i). The trucks arrive and off-load during normal business hours and will likely use the same path as the Safeway trucks, however, they will continue past the project residences and dock at the rear of the Staples store. Staples trucks are typically 10-ton trucks similar to a grocery store vendor truck. One daytime Staples truck will not add to the noise levels generated by the Safeway trucks, thus, there will be no affect on the Beresford Village residents. The hourly average sound levels at the most impacted project residences of a Staples truck entering the rear of the store, unloading and leaving will be 49 dBA L_{eq} for passby sound and 45 dBA L_{eq} for loading dock sound.

B. Mechanical Equipment Noise

A precise mechanical plan for the Safeway store, smaller retail shops and the Staples has not been developed at the time of this study. Thus, reference was made to mechanical equipment noise measurements made for similar sized Safeway stores, Ref. (d, e, f). The available plans for the roof-top equipment indicate that there will be an air-conditioner, a make-up air unit and three exhaust fans. The refrigeration compressors will be housed in the mechanical mezzanine inside the building. The precise trash compactor at the rear of the store is also unknown at this time. Likewise, rules-of-thumb for the mechanical equipment for the smaller retail shops and the Staples store were applied to typical roof-top mechanical equipment based on the size of the store.

The Safeway air-conditioner is planned to be a 4-Seasons Company 55-ton package unit sound rated at 100 dBA L_{wa} (A-weighted sound power). The make-up air unit will be a 3,000 - 5,000 CFM fan rated at 68 dBA at 15 ft. The exhaust fans will be 8,000 - 10,000 CFM fans rated at 71 dBA at 15 ft.

The roof plan shows an 8 ft. high acoustical screen around the equipment. At 195 ft. to the nearest Beresford Village residences and the incorporation of the 8 ft. high screen, the total sound level of all roof-top equipment operating will be 52 dBA. We estimate that the mechanical equipment will operate approximately 50% of the time as the equipment cycles. The hourly average noise level will be 49 dBA.

The total sound level at the planned project residences, also 195 ft. from the center of the equipment, will be 52 dBA. The hourly average noise level will also be 49 dBA.

Typical grocery store trash compactors generate sound levels of 68 to 75 dBA at 15 ft., depending upon the material being compacted. At the most impacted Beresford Village residences, the sound level will be up to 56 dBA. At the most impacted planned project residences, the sound level will be 46 dBA. The operational cycle of the compactor is typically less than one minute.

The mechanical equipment on the B Shops and C Shops buildings has not been specified. Typically 1 ton of cooling is required for every 600 sq. ft. of floor space. Table I, below, provides the estimated sound levels at the Beresford Village and project residences from roof-top mechanical equipment at the B Shops and C Shops buildings. The equipment configuration in the "tons" column denote five 5-ton units and three 4-ton units. Note that the A Shops, D Shops, Staples and E Shops buildings are not included as they are existing conditions and do not significantly impact the residences.

TABLE I

B Shops and C Shops Mechanical Equipment Sound Levels

			Sound Level, dBA	
Building	Sq. Ft.	Tons	Beresford Village	Project Res.
B Shops	13,271	5 x 5	26	24
C Shops	7,288	3 x 4	24	22

V. Impacts

A. Noise Impacts to the Project

To determine the existing and project-generated noise exposure impacts and evaluate the noise exposures against the City of Milpitas Noise Element standards and the Title 24 criterion, the DNL's for the survey locations were calculated by decibel averaging of the L_{eq}'s as they apply to the daily time periods of the DNL index. A nighttime weighting factor was applied to account for the increased human sensitivity to noise during the nighttime hours. The DNL's were calculated using the mathematical formula shown in Appendix B.

At measurement Location 1 near the planned Safeway loading dock and the Beresford Village residences, the existing noise exposures ranged from 59-61 dB DNL. The noise exposure in the rear yards of the homes closest to the loading dock were calculated to be 55 -57 dB DNL. At measurement Location 2 behind the Miller's Outpost store, the noise exposures ranged from 61-63 dB DNL. Thus, the existing noise exposures at the planned commercial building of the project are within the acceptable standards for commercial development. The existing noise exposures at the planned residential portion of the project are within the 65 dB DNL standard of the City of Milpitas Noise Element, but are up to 3 dB in excess of the Title 24 criterion.

B. Project-Generated Noise Impacts

Table II, below, provides the project-generated noise exposures at the most impacted Beresford Village residences and the most impacted planned project residences for trucking/loading dock operations and mechanical equipment. Also shown are the cumulative noise exposures, which is the existing + project noise exposure. The trucking/loading dock analysis assumes a worst-case scenario of two *refrigerated* and two *non-refrigerated* trucks arriving during the nighttime hours of 10:00 p.m. to 7:00 a.m.

TABLE II

Project-Generated Noise Exposures

	Trucking/Load. Dock	Mech. Equip.	Exist.	Cumulative
Beresford Village	54	60	55	62
Project Residences	49	60	61	64

As shown above the project-generated and cumulative noise exposures will be within the limits of the City of Milpitas Noise Element under planned conditions. However, the project will add more than 3 dB to the existing noise environment in the rear yards of the Beresford Village residences due to mechanical equipment operations.

The noise exposures at the planned project residences will up to 4 dB in excess of the Title 24 criterion. As the exterior noise exposures exceed the criterion of Title 24, an acoustical analysis is required. This report is intended to satisfy that requirement.

Mitigation measures will not be required to achieve compliance with the City of Milpitas Noise Element standard of 65 dB DNL for multi-family land use. However, recommendations for the mechanical equipment are presented in Section IV to limit the increase in the existing noise environment at Beresford Village to 3 dB or less.

C. Interior Noise Exposures

To evaluate the interior noise exposures against the 45 dB DNL interior limit of the City of Milpitas Noise Element and Title 24 standards, a 15 dB reduction was applied to the exterior noise exposure to account for the attenuation provided by the building shell under annual average conditions. The annual average condition assumes that windows with single-strength glass are maintained open 50% of the time for natural ventilation.

The interior noise exposure in the most impacted living spaces of the project residences will be up to 48 dB DNL under existing conditions and up to 49 dB DNL under post-project conditions. Thus, the interior noise exposures will be up to 4 dB in excess of the City of Milpitas and Title 24 standards.

As noise exposure excesses will occur, mitigation measures will be required. The recommended measures are described in Section IV, below.

D. Construction Phase Impacts

Short-term construction impacts may be created during construction of the project. Construction equipment generates noise levels in the range of 78 to 98 dBA at a 20 ft. distance from the source and has the potential for disturbing the nearby residences when equipment is operating. At the most impacted existing residences, the construction noise could be up to 98 dBA depending on the level of work performed near the rear yards of the Beresford Village residences. The existing soundwall along their rear property line will reduce noise from construction by 4-8 dB, depending upon the source.

Since construction is carried out in several reasonably discrete phases, each has its own mix of equipment and consequently, its own noise characteristics. Generally, the site preparation requires the use of heavy equipment such as bulldozers, backhoes, scrapers, and cement and diesel trucks. Certain days when construction occurs close to the north property line adjacent to Beresford Village the noise exposure will exceed 60 dB DNL. Residences within 115 ft. of a work area that utilizes diesel equipment for more than one full day will immit noise exposures in excess of 60 dB DNL.

VI. Recommendations

A. Project-Generated Impacts to Beresford Village

As the noise exposures are expected to be 65 dB DNL or lower mitigation measures will not be required.

However, to limit the noise exposure increase at Beresford Village to no more than 3 dB above the existing ambient noise exposure, the following measures are recommended:

- Require a detailed acoustical analysis of the roof-top mechanical equipment at the Safeway store, once a mechanical plan is developed, to ensure than the mechanical equipment will not exceed 51 dB DNL at the Beresford Village residences (exterior). Less noisy equipment than what has been specified, a higher acoustical screen or re-location of equipment on the roof may be necessary to achieve the noise goal.

B. Project Residential Interior Noise Control

To achieve interior noise exposures in compliance with the City of Milpitas Noise Element and Title 24 standards of 45 dB DNL, the following window controls are recommended. In addition, general construction measures affecting the building shell are also recommended, as described in Appendix B.

- Maintain closed at all times all windows and doors of living spaces within 130 ft. of the rear facade of the Staples store. These windows may have any type of glass. Provide some type of mechanical ventilation.

The remaining windows of the development including bathroom windows may be fitted with any type of glass and may be kept open as desired, with the exception of bathrooms that are an integral part of a living space and not separated by a closeable door.

When windows are maintained closed for noise control, they are to be operable, as the requirement does not imply a "fixed" condition. Also, under the closed window requirement, some type of mechanical ventilation should be provided to assure a habitable environment, as specified by the Uniform Building Code (UBC), and described in Appendix B.

All windows and sliding glass doors of the impacted units should be of good quality and provide tight seals to prevent sound infiltration. The window and door frames must be sealed air-tight to the wall opening with a non-hardening caulk or acoustical sealant to prevent sound infiltration.

The implementation of the above recommended measures will reduce excess noise exposures to achieve compliance with the interior standards of the City of Milpitas Noise Element and Title 24.

C. Construction Noise Reduction

Reduction of the construction phase noise at the site can be accomplished by using quiet or "new technology" equipment. The greatest potential for noise abatement of current equipment should be the quieting of exhaust noises by use of improved mufflers. It is recommended that all internal combustion engines used at the project site be equipped with a type of muffler recommended by the vehicle manufacturer. In addition, all equipment should be in good mechanical condition so as to minimize noise created by faulty or poorly maintained engine, drive-train and other components. Construction noise can also be mitigated by the following:

- Demolition of buildings should occur in phases with the walls of the building closest to existing residences being removed last as the walls can act as noise barriers.

- Scheduling noisy operations for the daytime hours of 7:00 a.m. to 5:00 p.m. Monday through Friday.

- All diesel powered equipment should be located more than 115 ft. from any residence if the equipment is to operate for more than several hours per day.

- Dirt berming and stockpiling materials whenever possible can also help reduce noise to sensitive receptor locations.

As noise reduction benefit can also be achieved by appropriate selection of equipment utilized for various operations, subject to equipment availability and cost considerations, the following recommendations for minimizing impacts on the surrounding area are offered:

Earth Removal: Use scrapers as much as possible for earth removal, rather than the noisier loaders and hauling trucks.

Backfilling: Use a backhoe for backfilling, as it is less costly and quieter than either dozers or loaders.

Ground Preparation: Use a motor grader rather than a bulldozer for final grading.

Building Construction: Powers saws should be shielded or enclosed where practical to decrease noise emissions. Nail guns should be used where possible as they are less noisy than manual hammering.

VII. Conclusions

In conclusion, the project will result in noise exposures that will be within the 65 dB DNL limit for multi-family residences. However, the project will add more than 3 dB to the existing ambient noise environment, which is typically considered a significant noise impact. Mitigation measures are provided to limit the noise exposure increase to 3 dB or less. In addition, the interior noise exposures in the future project residences will be in excess of the City of Milpitas and Title 24 standards. Recommendations to achieve compliance with the standards are provided in this study.

The above report presents the results of a noise assessment study for the proposed "Milpitas Town Center" commercial and residential development at Calaveras Boulevard and Milpitas Boulevard in Milpitas. The study findings for present conditions are based on field surveys and other data, and are correct to the best of our knowledge. Future noise levels were estimated using information provided by Safeway and Staples. Future changes in operational conditions, activity levels, motor vehicle technology, noise regulations or other future changes beyond our control may result in future noise levels different from our estimates.

Prepared By:

EDWARD L. PACK ASSOC., INC.

Jeffrey K. Pack
President

Attachments: Appendices A, B and C

APPENDIX A

References

(a) Site Plan, Milpitas Town Center, by Craig & Grant Architects, August 21, 2003

(b) City of Milpitas General Plan, Chapter 6, Noise Element, July 30, 1997

(c) California Code of Regulations, Title 24, Part II, "Sound Transmission Control", Revised 1989

(d) "Noise Assessment Study of the Loading Dock for the Planned Safeway Store #16 Expansion, Branham Lane, San Jose", by Edward L. Pack Associates, Inc., Project No. 32-039, May 10, 2000

(e) "Noise Level Measurements of Bally's and Safeway Store Mechanical Equipment, Veranda Development, San Jose", by Edward L. Pack Associates, Inc., Project No. 31-093-6, June 19, 2001

(f) "Noise Assessment Study for the Planned Safeway Store #990 Remodel, El Camino Real, Menlo Park", by Edward L. Pack Associates, Inc., Project No. 32-065-1, August 14, 2000

(g) Information on Safeway Store Trucking/Loading Operations Provided by Ms. Natalie Thompson, Safeway, by email to Edward L. Pack Associates, Inc., April 23, 2003

(h) Information on Safeway Store Operations Provided by Ms. Sonia Avilla, Safeway, by Telephone to Edward L. Pack Associates, Inc., April 24, 2003

(i) Information of Staples Store Trucking/Loading Operations Provided by Mr. Steve Glaser, Staples Store Milpitas, by Telephone to Edward L. Pack Associates, Inc., April 28, 2003

APPENDIX B

Noise Standards, Terminology, Instrumentation, Ventilation Requirements, General Building Shell Controls

1. Noise Standards

A. City of Milpitas Noise Element Standards

The noise standards of the City of Milpitas Noise Element of the General Plan, updated July 30, 1997, employ the Day-Night Level (DNL) noise descriptor, which is a 24-hour average noise descriptor that penalizes noise created between 10:00 p.m. and 7:00 a.m. by 10 decibels. The "Normally Acceptable" noise exposure for single-family land-use is 60 dB DNL. For multi-family land-use, the "Normally Acceptable" limit is 65 dB DNL. Schools, libraries, churches, nursing homes, hospitals, playgrounds, parks, auditoriums, amphitheaters, office buildings, and other commercial or professional business uses are acceptable up to 70 dB DNL. Sports arenas, industrial, manufacturing, golf courses, riding stables, water recreation and cemeteries are acceptable up to 75 dB DNL.

Interior noise exposures in all residences are limited to 45 dB DNL.

B. Title 24 Noise Standards

The California Code of Regulations, "Sound Transmission Control", Title 24, Part II, applies to all new multi-family dwellings including condominiums, townhouses, apartments, hotels and motels. The standards, which utilize the Day-Night Level (DNL) descriptor, establish an exterior reference or criterion level of 60 dB DNL, and specify that multi-family buildings to be located within an annual DNL zone of 60 dB or greater require an acoustical analysis. The analysis report must show that the planned buildings provide adequate attenuation to limit intruding noise from exterior sources to an annual DNL of 45 dB or less in any habitable space. The Community Noise Equivalent Level (DNL) descriptor, which is similar to the DNL, may also be used, as the DNL and DNL are considered to be equivalent.

The Title 24 standards also establish minimum sound insulation requirements for interior partitions separating different dwelling units from each other and dwelling units from common spaces such as garages, corridors, equipment rooms, etc. The common interior walls and floor/ceiling assemblies must achieve a minimum Sound Transmission Class (STC) rating of 50 for airborne noise. Common floor/ceiling assemblies must achieve an Impact Insulation Class (IIC) rating of 50 for impact noise. These ratings are based on laboratory tested partitions. Field tested partitions must achieve ratings of NIC and FIIC 45.

2. Terminology

A. Statistical Noise Levels

Due to the fluctuating character of urban traffic noise, statistical procedures are needed to provide an adequate description of the environment. A series of statistical descriptors have been developed which represent the noise levels exceeded a given percentage of the time. These descriptors are obtained by direct readout of the Sound Level Meters. Some of the statistical levels used to describe community noise are defined as follows:

L_1 - A noise level exceeded for 1% of the time

L_{10} - A noise level exceeded for 10% of the time, considered to be an "intrusive" level.

L_{50} - The noise level exceeded 50% of the time representing an "average" sound level.

L_{90} - The noise level exceeded 90 % of the time, designated as a "background" noise level.

L_{eq} - The continuous equivalent-energy level is that level of a steady state noise having the same energy as a given time-varying noise. The L_{eq} represents the decibel level of the time-averaged value of sound energy or sound pressure squared. The L_{eq} is used to calculate the CNEL and DNL.

B. Day-Night Level (DNL)

Noise levels utilized in the standards are described in terms of the Day-Night Level (DNL). The DNL rating is determined by the cumulative noise exposures occurring over a 24-hour day in terms of A-Weighted sound energy. The 24-hour day is divided into two subperiods for the DNL index, i.e., the daytime period from 7:00 a.m. to 10:00 p.m., and the nighttime period from 10:00 p.m. to 7:00 a.m. A 10 dBA weighting factor is applied (added) to the noise levels occurring during the nighttime period to account for the greater sensitivity of people to noise during these hours. The DNL is calculated from the measured L_{eq} in accordance with the following mathematical formula:

$$DNL = [(L_d+10 \log_{10} 15) \& (L_n+10+10 \log_{10} 9)] -10 \log10\ 24$$

Where:

L_d = L_{eq} for the daytime (7:00 a.m. to 10:00 p.m.)
L_n = L_{eq} for the nighttime (10:00 p.m. to 7:00 a.m.)
24 indicates the 24-hour period
& denotes decibel addition.

C. A-Weighted Sound Level

The decibel measure of the sound level utilizing the "A" weighted network of a sound level meter is referred to as "dBA". The "A" weighting is the accepted standard weighting system used when noise is measured and recorded for the purpose of determining total noise levels and conducting statistical analyses of the environment so that the output correlates well with the response of the human ear.

3. Instrumentation

The on-site field measurement data were acquired by the use of one of the instruments specified below, which provides a direct readout of the L exceedance statistical levels including the equivalent-energy level (L_{eq}). Input to the instrument was provided by a microphone extended to a height of 5 ft. above the ground on using a tripod or mast. The "A" weighting network and the "Fast" response setting of the instruments were used in conformance with the applicable standards. The instruments conform to American National Standards Institute (ANSI) standard S1.4 for Type I instruments, and all instrumentation was acoustically calibrated before and after field tests to assure accuracy.

Instruments used for field surveys:
Larson-Davis Model 812 Integrating Sound Level Meter
Bruel & Kjaer Model 2231 Precision Sound Level Meter
Larson Davis Model 2900 Real Time Analyzer

4. Ventilation Requirements

Ventilation requirements to be applied when windows are maintained closed for noise control are specified in the Uniform Building Code (UBC), 1997 edition, Section 12.03.3 as follows:

> "In lieu of required exterior openings for natural ventilation, a mechanical ventilating system may be provided. Such system shall be capable of providing two air changes per hour in guest rooms, dormitories, habitable rooms, and in public corridors with a minimum of 15 cubic feet per minute (7L/s) of outside air per occupant during such time as the building is occupied."

Based on our previous experience, a "summer switch" on the furnace fan is normally considered acceptable as a ventilation system by FHA and other agencies. Air-conditioning is also an acceptable system.

5. Building Shell Controls

The following additional precautionary measures are required to assure the greatest potential for exterior-to-interior noise attenuation by the recommended mitigation measures. These measures apply at those units where closed windows are required.

- Unshielded entry doors having a direct or side orientation toward the primary noise source must be 1-5/8" or 1-3/4" thick, insulated metal or solid-core wood construction with effective weather seals around the full perimeter. Mail slots should not be used in these doors or in the wall of a living space, as a significant noise leakage can occur through them.
- If any penetrations in the building shell are required for vents, piping, conduit, etc., sound leakage around these penetrations can be controlled by sealing all cracks and clearance spaces with a non-hardening caulking compound.
- Fireplaces should be provided with tight-fitting dampers.

APPENDIX C

On-Site Noise Measurement Data and Calculation Tables

DNL CALCULATIONS

CLIENT:	SHAPELL INDUSTRIES
FILE:	35-020
PROJECT:	MILPITAS TOWN CENTER
DATE:	3/27-31/2003
SOURCE:	EXISTING AMBIENT

LOCATION 1	Planned Safeway Loading Dock				LOCATION 1	Planned Safeway Loading Dock			
	Thurs - Fri					Fri - Sat			
TIME	Leq	10^Leq/10			TIME	Leq	10^Leq/10		
7:00a.m.	57.3	537031.8			7:00a.m.	54.6	288403.2		
8:00 a.m.	59.1	812830.5			8:00 a.m.	51.2	131825.7		
9:00a.m.	54.4	275422.9			9:00a.m.	54.9	309029.5		
10:00a.m.	61.7	1479108.4			10:00a.m.	56.9	489778.8		
11:00 a.m.	57.5	562341.3			11:00 a.m.	62.1	1621810.1		
12:00noon	58.0	630957.3			12:00noon	61.0	1258925.4		
1:00p.m.	56.9	489778.8			1:00p.m.	56.8	478630.1		
2:00 p.m.	57.8	602559.6	63.4		2:00 p.m.	57.6	575439.9		
3:00 p.m.	56.9	489778.8	59.9		3:00 p.m.	57.2	524807.5		
4:00 p.m.	57.8	602559.6			4:00 p.m.	58.4	691831.0		
5:00 p.m.	57.8	602559.6			5:00 p.m.	58.6	724436.0		
6:00 p.m.	55.5	354813.4			6:00 p.m.	57.5	562341.3		
7:00 p.m.	56.3	426579.5			7:00 p.m.	58.5	707945.8		
8:00 p.m.	54.5	281838.3			8:00 p.m.	56.8	478630.1		
9:00 p.m.	54.5	281838.3	SUM=	8429998.1	9:00 p.m.	57.2	524807.5	SUM=	9368641.8
10:00 p.m.	53.3	213796.2	Ld=	57.5	10:00 p.m.	54.6	288403.2	Ld=	58.0
11:00 p.m.	50.8	120226.4			11:00 p.m.	53.5	223872.1		
12:00mdnt	52.5	177827.9			12:00mdnt	50.7	117489.8		
1:00 a.m.	48.6	72443.6			1:00 a.m.	49.5	89125.1		
2:00 a.m.	48.1	64565.4			2:00 a.m.	47.9	61659.5		
3:00 a.m.	47.6	57544.0			3:00 a.m.	48.5	70794.6		
4:00 a.m.	52.7	186208.7			4:00 a.m.	48.7	74131.0		
5:00 a.m.	51.4	138038.4			5:00 a.m.	56.1	407380.3		
6:00 a.m.	58.5	707945.8	SUM=	1738596.5	6:00 a.m.	58.3	676083.0	SUM=	2008938.5
			Ln=	52.9				Ln=	53.5
	Daytime Level=	69.3				Daytime Level=	69.8		
	Nighttime Level=	72.4				Nighttime Level=	73.0		
	DNL=	**60.3**				**DNL=**	**60.9**		
	24-Hour Leq=	56.3				24-Hour Leq=	56.8		

DNL CALCULATIONS

CLIENT:	SHAPELL INDUSTRIES									
FILE:	35-020									
PROJECT:	MILPITAS TOWN CENTER									
DATE:	3/27-31/2003									
SOURCE:	EXISTING AMBIENT									
LOCATION 1	Planned Safeway Loading Dock				LOCATION 1	Planned Safeway Loading Dock				
	Sat - Sun					Sun-Mon				
TIME	Leq	10^Leq/10			TIME	Leq	10^Leq/10			
7:00a.m.	53.8	239883.3			7:00a.m.	57.2	524807.5			
8:00 a.m.	53.3	213796.2			8:00 a.m.	54.0	251188.6			
9:00a.m.	55.6	363078.1			9:00a.m.	54.4	275422.9			
10:00a.m.	55.8	380189.4			10:00a.m.	56.1	407380.3			
11:00 a.m.	56.3	426579.5			11:00 a.m.		1.0			
12:00noon	58.4	691831.0			12:00noon		1.0			
1:00p.m.	55.3	338844.2			1:00p.m.		1.0			
2:00 p.m.	56.4	436515.8			2:00 p.m.		1.0			
3:00 p.m.	55.8	380189.4			3:00 p.m.	57.3	537031.8			
4:00 p.m.	57.2	524807.5			4:00 p.m.	56.3	426579.5			
5:00 p.m.	56.8	478630.1			5:00 p.m.	56.6	457088.2			
6:00 p.m.	56.2	416869.4			6:00 p.m.	54.8	301995.2			
7:00 p.m.	57.0	501187.2			7:00 p.m.	54.0	251188.6			
8:00 p.m.	55.8	380189.4			8:00 p.m.	53.8	239883.3			
9:00 p.m.	56.1	407380.3	SUM=	6179970.7	9:00 p.m.	52.7	186208.7	SUM=	3858778.6	
10:00 p.m.	54.3	269153.5	Ld=	56.1	10:00 p.m.	51.5	141253.8	Ld=	54.1	
11:00 p.m.	55.0	316227.8			11:00 p.m.	51.7	147910.8			
12:00mdnt	53.3	213796.2			12:00mdnt	47.7	58884.4			
1:00 a.m.	47.7	58884.4			1:00 a.m.	46.6	45708.8			
2:00 a.m.	47.1	51286.1			2:00 a.m.	45.0	31622.8			
3:00 a.m.	46.0	39810.7			3:00 a.m.	48.1	64565.4			
4:00 a.m.	45.7	37153.5			4:00 a.m.	47.4	54954.1			
5:00 a.m.	48.5	70794.6			5:00 a.m.	55.8	380189.4			
6:00 a.m.	53.5	223872.1	SUM=	1280978.9	6:00 a.m.	61.8	1513561.2	SUM=	2438650.7	
			Ln=	51.5				Ln=	54.3	
	Daytime Level=	67.9				Daytime Level=	65.9			
	Nighttime Level=	71.0				Nighttime Level=	73.8			
	DNL=	**59.0**				**DNL=**	**60.7**			
	24-Hour Leq=	54.9				24-Hour Leq=	54.2			

DNL CALCULATIONS

CLIENT:	SHAPELL INDUSTRIES
FILE:	35-020
PROJECT:	MILPITAS TOWN CENTER
DATE:	3/27-31/2003
SOURCE:	EXISTING AMBIENT

LOCATION 2	Behind Miller's Outpost (Staple's)			
	Thurs - Fri			
TIME	Leq	10^Leq/10		
7:00a.m.	61.5	1412537.5		
8:00 a.m.	56.5	446683.6		
9:00a.m.	56.5	446683.6		
10:00a.m.	58.2	660693.4		
11:00 a.m.	57.2	524807.5		
12:00noon	57.5	562341.3		
1:00p.m.	57.1	512861.4		
2:00 p.m.	56.9	489778.8		
3:00 p.m.	55.1	323593.7		
4:00 p.m.	56.5	446683.6		
5:00 p.m.	53.6	229086.8		
6:00 p.m.	53.1	204173.8		
7:00 p.m.	53.6	229086.8		
8:00 p.m.	53.9	245470.9		
9:00 p.m.	55.8	380189.4	SUM=	7114672.0
10:00 p.m.	56.6	457088.2	Ld=	56.8
11:00 p.m.	57.4	549540.9		
12:00mdnt	54.9	309029.5		
1:00 a.m.	58.3	676083.0		
2:00 a.m.	51.8	151356.1		
3:00 a.m.	49.9	97723.7		
4:00 a.m.	56.9	489778.8		
5:00 a.m.	59.3	851138.0		
6:00 a.m.	58.5	707945.8	SUM=	4289684.1
			Ln=	56.8
	Daytime Level=	68.6		
	Nighttime Level=	76.3		
	DNL=	**63.2**		
	24-Hour Leq=	56.8		

LOCATION 2	Behind Miller's Outpost (Staple's)			
	Fri - Sat			
TIME	Leq	10^Leq/10		
7:00a.m.	59.3	851138.0		
8:00 a.m.	51.6	144544.0		
9:00a.m.	53.8	239883.3		
10:00a.m.	52.7	186208.7		
11:00 a.m.	54.0	251188.6		
12:00noon	52.9	194984.5		
1:00p.m.	54.6	288403.2		
2:00 p.m.	53.2	208929.6		
3:00 p.m.	57.0	501187.2		
4:00 p.m.	55.5	354813.4		
5:00 p.m.	55.9	389045.1		
6:00 p.m.	55.7	371535.2		
7:00 p.m.	56.8	478630.1		
8:00 p.m.	56.6	457088.2		
9:00 p.m.	56.4	436515.8	SUM=	5354095.0
10:00 p.m.	56.5	446683.6	Ld=	55.5
11:00 p.m.	53.5	223872.1		
12:00mdnt	59.3	851138.0		
1:00 a.m.	50.5	112201.8		
2:00 a.m.	45.4	34673.7		
3:00 a.m.	47.1	51286.1		
4:00 a.m.	58.8	758577.6		
5:00 a.m.	54.9	309029.5		
6:00 a.m.	58.2	660693.4	SUM=	3448156.0
			Ln=	55.8
	Daytime Level=	67.3		
	Nighttime Level=	75.3		
	DNL=	**62.2**		
	24-Hour Leq=	55.6		

DNL CALCULATIONS

CLIENT:	SHAPELL INDUSTRIES
FILE:	35-020
PROJECT:	MILPITAS TOWN CENTER
DATE:	3/27-31/2003
SOURCE:	EXISTING AMBIENT

LOCATION 2	Behind Miller's Outpost (Staple's)			
	Sat - Sun			
TIME	Leq	10^Leq/10		
7:00a.m.	53.6	229086.8		
8:00 a.m.	50.9	123026.9		
9:00a.m.	52.8	190546.1		
10:00a.m.	51.6	144544.0		
11:00 a.m.	53.7	234422.9		
12:00noon	54.8	301995.2		
1:00p.m.	53.1	204173.8		
2:00 p.m.	52.7	186208.7		
3:00 p.m.	53.5	223872.1		
4:00 p.m.	54.2	263026.8		
5:00 p.m.	53.9	245470.9		
6:00 p.m.	54.2	263026.8		
7:00 p.m.	56.4	436515.8		
8:00 p.m.	56.3	426579.5		
9:00 p.m.	55.2	331131.1	SUM=	3803627.3
10:00 p.m.	56.0	398107.2	Ld=	54.0
11:00 p.m.	60.6	1148153.6		
12:00mdnt	54.4	275422.9		
1:00 a.m.	50.7	117489.8		
2:00 a.m.	50.3	107151.9		
3:00 a.m.	48.2	66069.3		
4:00 a.m.	46.8	47863.0		
5:00 a.m.	49.4	87096.4		
6:00 a.m.	55.3	338844.2	SUM=	2586198.2
			Ln=	54.6
	Daytime Level=	65.8		
	Nighttime Level=	74.1		
	DNL=	**60.9**		
	24-Hour Leq=	54.3		

LOCATION 2	Behind Miller's Outpost (Staple's)			
	Sun-Mon			
TIME	Leq	10^Leq/10		
7:00a.m.	56.3	426579.5		
8:00 a.m.	51.9	154881.7		
9:00a.m.	53.0	199526.2		
10:00a.m.	56.1	407380.3		
11:00 a.m.	57.5	562341.3		
12:00noon		1.0		
1:00p.m.		1.0		
2:00 p.m.		1.0		
3:00 p.m.	55.5	354813.4		
4:00 p.m.	54.5	281838.3		
5:00 p.m.	55.0	316227.8		
6:00 p.m.	54.5	281838.3		
7:00 p.m.	54.7	295120.9		
8:00 p.m.	53.6	229086.8		
9:00 p.m.	53.4	218776.2	SUM=	3728413.6
10:00 p.m.	54.2	263026.8	Ld=	54.0
11:00 p.m.	55.8	380189.4		
12:00mdnt	56.3	426579.5		
1:00 a.m.	50.2	104712.9		
2:00 a.m.	49.0	79432.8		
3:00 a.m.	52.3	169824.4		
4:00 a.m.	54.8	301995.2		
5:00 a.m.	59.7	933254.3		
6:00 a.m.	61.2	1318256.7	SUM=	3977272.0
			Ln=	56.5
	Daytime Level=	65.8		
	Nighttime Level=	76.0		
	DNL=	**62.5**		
	24-Hour Leq=	55.1		